

REMARKS

The present amendment is submitted as response to an office action dated December 15, 2006. The application now consists of claims 1-4 and 6-8. Claims 1-4, 6 and 7 are amended and claim 5 is cancelled herewith.

Claims 3, 4 and 6 stand rejected under 35 USC 112, second paragraph, since the use of the phrase "narrow energy range" is indefinite and does not provide metes and bounds for the claims. Applicants respectfully disagree with the rejection. However, in order to have the application proceed towards allowance, applicants have amended the phrase in the claims to "a photon energy associated with a particular radioisotope," in order to make explicit was already implicit.

Claims 5 and 6 stand rejected under 35 USC 112, second paragraph, since there is no antecedent for "the external surface of said ingestible device". Claim 5 was cancelled and incorporated into claim 1 and 2. The antecedent was amended in claim 1 to "said shell".

The following prior art rejections were raised by the Examiner in the office action:

Claims 1-4 and 7 stand rejected under 35 USC 102(b) as being anticipated by Hassan et al. (Phys. Med. Biol. 1978, vol. 23, no. 2, 302-308).

Claim 5 and 6 stand rejected under 35 USC 103(a) as being unpatentable over Hassan in view of Barret et al (US 4,565,014) and in further view of Glukhovsky (US 6,584,348).

Claim 8 stands rejected under 35 USC 103(a) as being unpatentable over Hassan in view of Zang et al. (Society of Nuclear Medicine, June 2000).

Claim 1 is the only independent claim in the application. In order to further the application towards allowance, claim 1 was amended to incorporate the limitation of a plurality of nuclear radiation detectors from claim 5. Applicants therefore submit that the rejection on old claim 1 is moot and will refer to the rejection of claim 5.

Applicants respectfully traverse the rejection to claim 5 (now claims 1 and 2) and submit that the Examiner did not provide a *prima facie* case of obviousness since the Examiner provided neither a motivation to combine the references nor a teaching how the combination of the references would result in claim 1.

Amended claim 1 includes the limitation of a plurality of nuclear radiation detectors arranged around the shell of the ingestible device. The Examiner submits that while Hassan does not disclose this limitation, the limitation is taught by Barrett. According to the Examiner's assertion, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Hassan to create an ingestible device with a plurality of nuclear radiation detectors.

Barrett teaches an imaging apparatus which includes a probe coupled to a cable to be inserted in the body. The velocity and rotation of the device are controlled by the cable and the person inserting the device. This allows Barrett to stay at a specific position as long as needed to detect sufficient radiation from all directions. The control of the probe is an essential feature in Barrett since it allows the monitoring of the plurality of detectors. Throughout the document, Barrett shows several different embodiment of the device; what is common to these embodiments is that the position and velocity of the probe is always controlled and monitored. Furthermore, some motions, such as tumbling are not supported.

Unlike Barrett's device, the radiation pill of Hassan is freely traveling inside the body of the patient without being controlled. Hassan does not require knowing the exact position/orientation of the pill since he receives information from a single detector only. Thus, Hassan would not use the plurality of detectors taught by Barrett since the pill of Hassan is not controlled and Hassan would not know how to monitor and match the signals of the plurality of detectors with specific tissue locations/directions. In addition, Hassan teaches against adding directional information to its pill since measuring directional information generally reduces total measurement, and Hassan is trying to increase the total measurement (see conclusion on p. 307).

Moreover, the device of Barrett moves in an axial position and/or rotates around a vertical axis. Unlike Barrett's device, the radiation pill of Hassan is not connected to a cable and does therefore, in addition to the rotations of Barrett's device, rotate around a horizontal axis. If one would somehow add the plurality of radiation detectors of Barrett to Hassan's pill,

the pill would result a disorder of detections since there is no teaching of how to monitor the rotation of the plurality of detectors on the pill.

In addition, Barrett teaches the monitoring of the position of the probe and the plurality of detectors thereon is accomplished by the cable connected to the probe. See for example col. 3, lines 38-46: "*... the cable 50 is under control of a metering device 55 used to keep track of the length of cable, so that the extent of probe insertion into the body can be measured. The metering device 55 may be of any known type, such as one wherein the length of cable is calibrated using optically read marks. Alternatively, the extension of the probe can be determined by other means, such as by reading the position of reference marks on a mouthpiece 15*", Col. 4, lines 27-29: "*In operation, at each axial position of the probe (the axial position being defined, for example, by the depth of insertion of the probe into the body)*" and Col. 6, lines 42-44: "*Rotation is monitored by a conductance sensor in rotation measurement and block 65 drive circuit, via wire 62 in cable 50.*"

Thus, if one would include the plurality of detectors of Barrett in the pill of Hassan, the cable of Barrett would also be included with Hassan's pill for monitoring of the detectors. However, Hassan teaches against the use of such a cable, see page 1, second paragraph: "*endoscopes involve a greater degree of clinical preparation and can cause considerable discomfort to the patient.*" Therefore, a person with ordinary skill in the art would have no motivation to combine Hassan with Barrett.

The Examiner asserts that claim 5 is further obvious in view of Glukhovsky. The applicant respectfully disagrees and submits that the Examiner did not provide a *prima facie* case of obviousness. Glukhovsky teaches an apparatus for measuring electrical characteristics of a tissue, the apparatus comprising a plurality of electrodes. The Examiner did not show a motivation as to why the teaching of a device with a plurality of electrodes would render a device with a plurality of radiation probes obvious. Applicants submit that electrodes for measuring electrical characteristics of a tissue are of a different type than the radiation probes of claim 1 and a person having ordinary skill in the art, reading Glukhovsky, would have no motivation to combine Glukhovsky with Hassan or Barrett.

The dependent claims are patentable at least by virtue of their parent claims. Furthermore, at least some of the dependent claims add further patentability over the prior art.

Claim 8, for example, requires that the device is arranged as a Compton camera. None of the prior art teaches an ingestible device arranged as a Compton camera. The Examiner cites Zhang which teaches a transrectal imaging probe based on Compton camera techniques and asserts that it would have been obvious to modify Hassan to include the Compton camera probe of Zhang.

Applicants respectfully disagree and submit that the Examiner did not provide a *prima facie* case of obviousness. The imaging probe of Zhang is used in conjunction with CZT cameras located below and above the body (No. 68, Col. 1). The Examiner did not provide a motivation to combine the technique of Zhang with an ingestible device that is encapsulated with a shell. Thus, none of the cited references alone or in combination, teach the ingestible device arranged as a Compton camera as required by claim 1.

In view of the above remarks, applicant submits that the claims are patentable over the prior art. Allowance of the application is respectfully awaited.

Respectfully submitted,



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